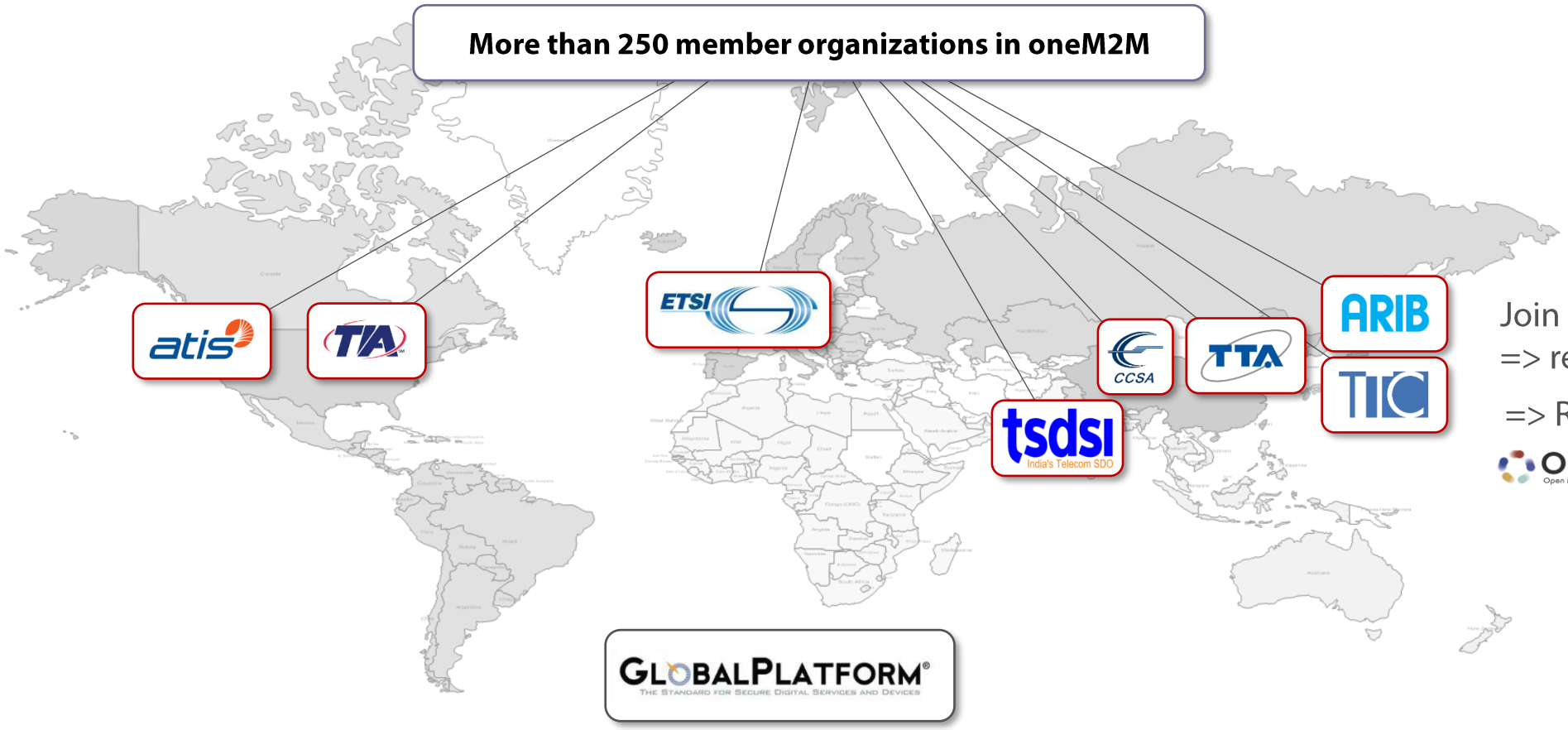
IoT Architecture Patterns: A Generalized Approach for IoT Systems

oneM2M presentation to the Industrial Internet Consortium

Ken Figueredo, 16 June 2021

oneM2M is the global community that develops standards for end-to-end IoT systems



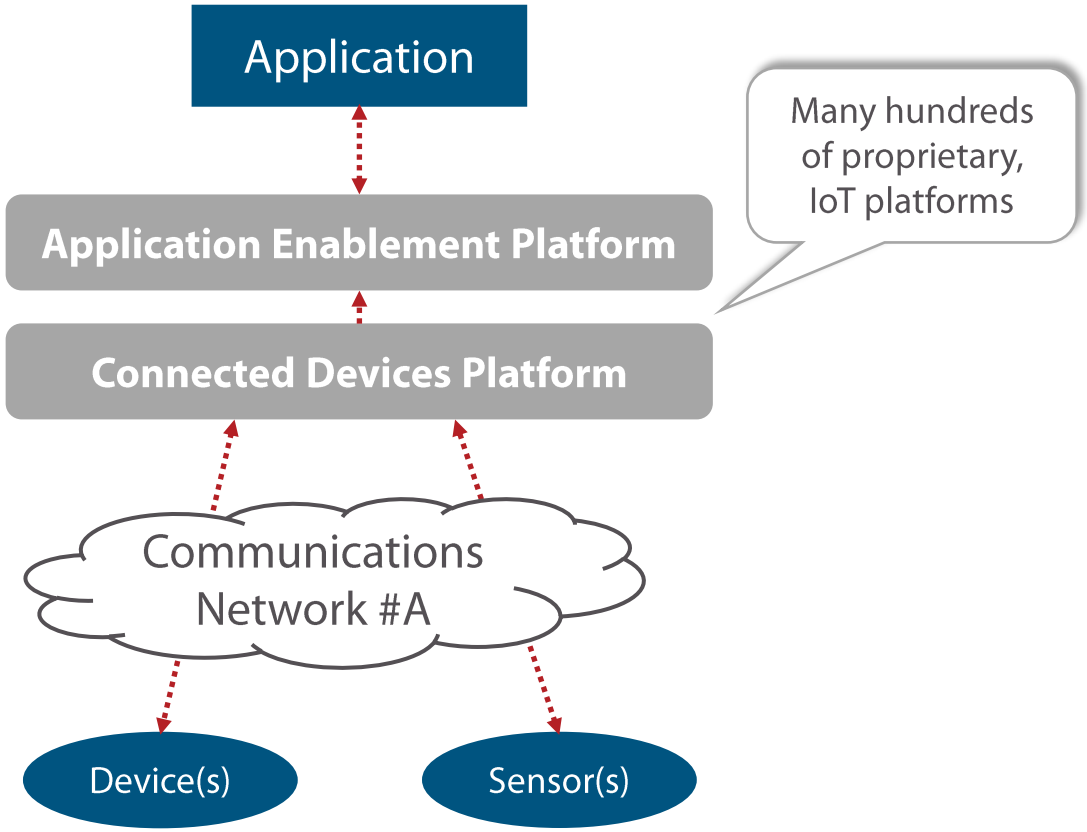
Join forces
=> reduce fragmentation
=> Reuse *e.g.*
oma Open Mobile Alliance broadband forum HGI

Founded July, 24th 2012, Technical Plenary#1: Sep 24th-29th 2012
All documents and specifications are publicly accessible at www.oneM2M.org

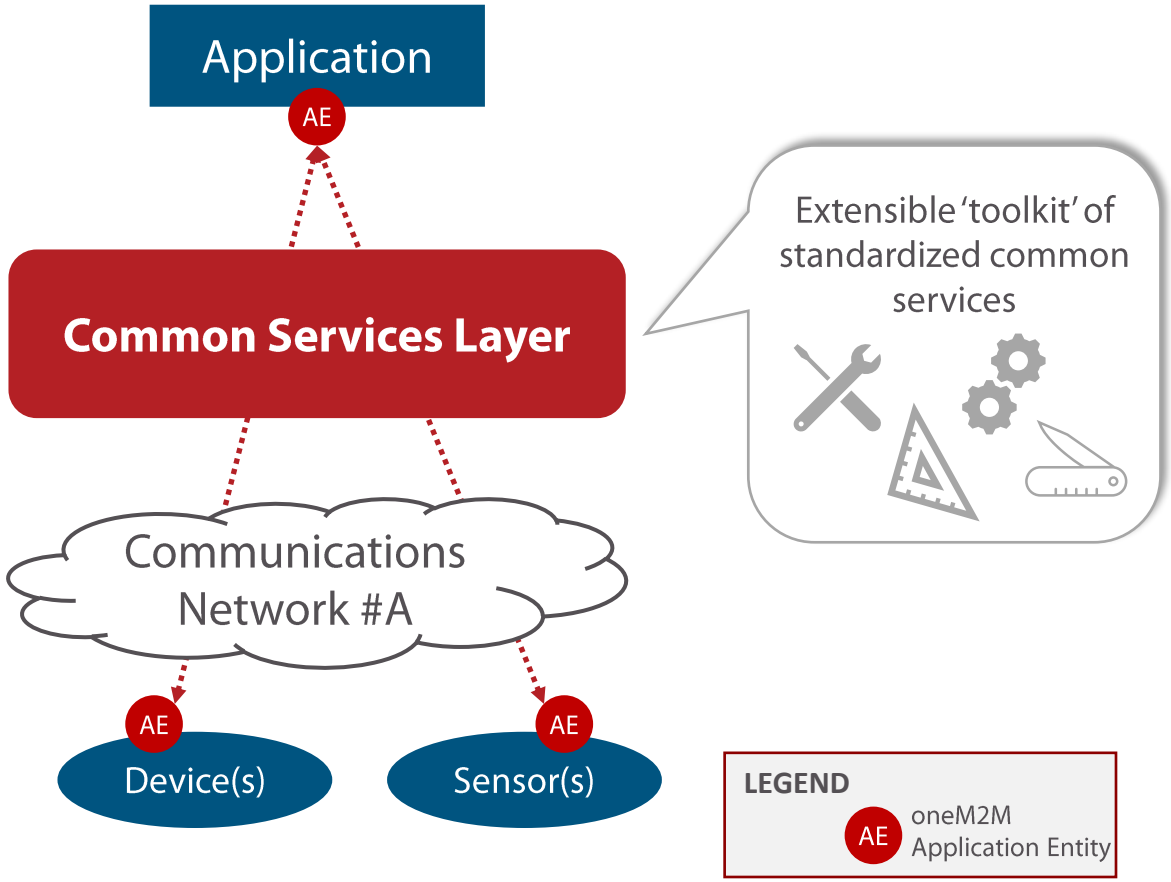
INTERNATIONAL STANDARDIZTION STATUS
Release 2 transposition as ITU-T SG20 Y.4500.x

Objective: help developers to build repeatable and scalable IoT systems using a common 'toolkit'

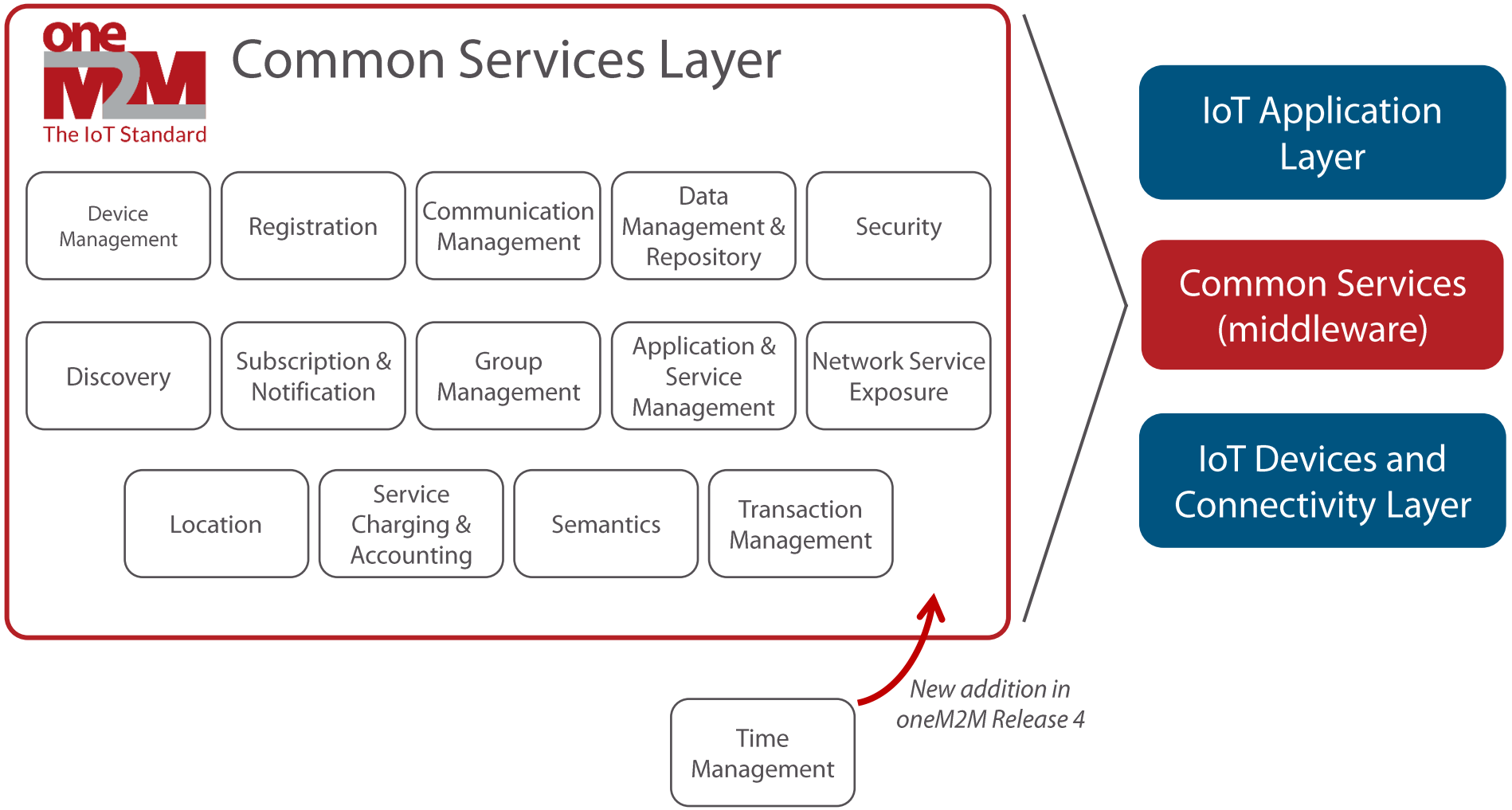
Traditional Market Structure



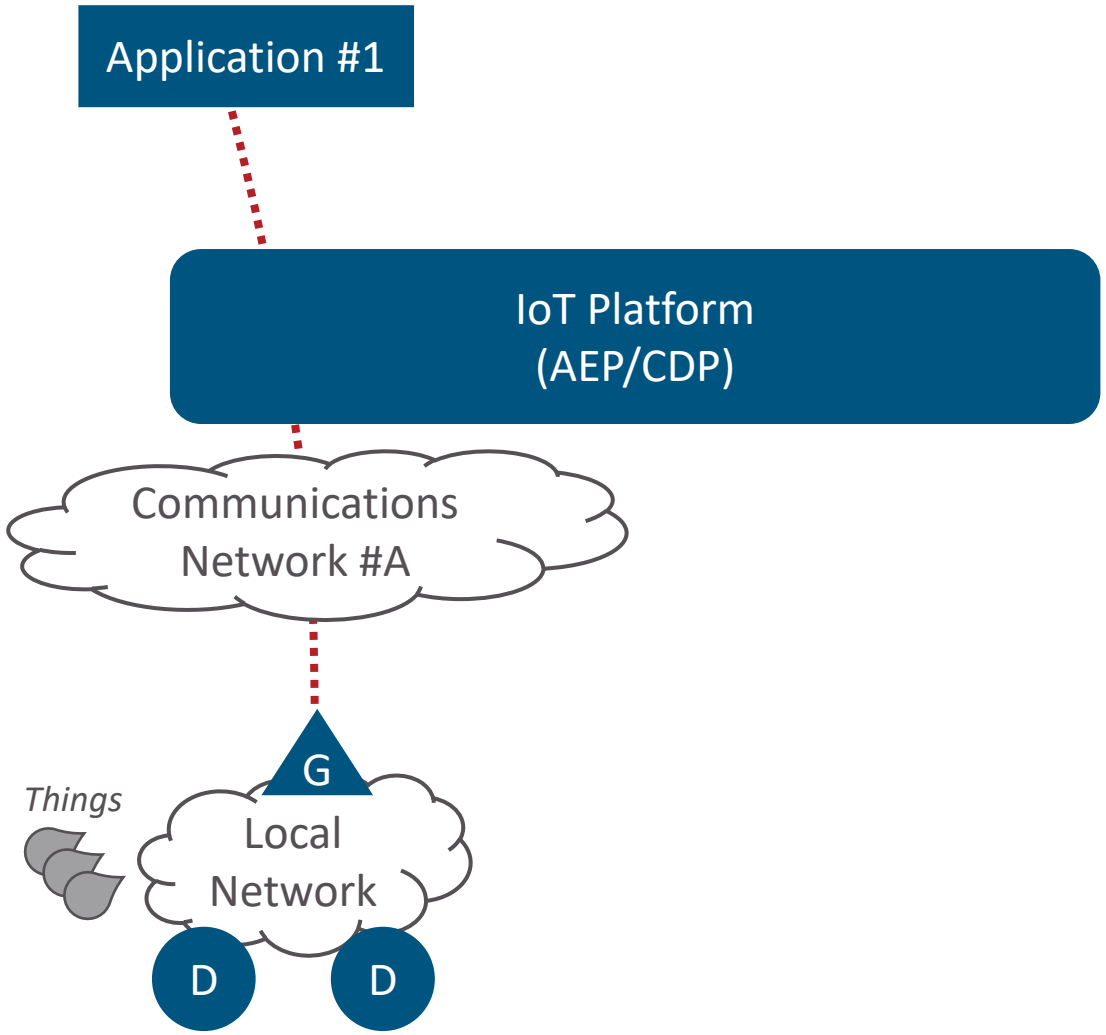
oneM2M's Standards-based Structure



A standardized framework to add new tools or 'Common Service Functions' over time



Pattern: A Simple IoT system



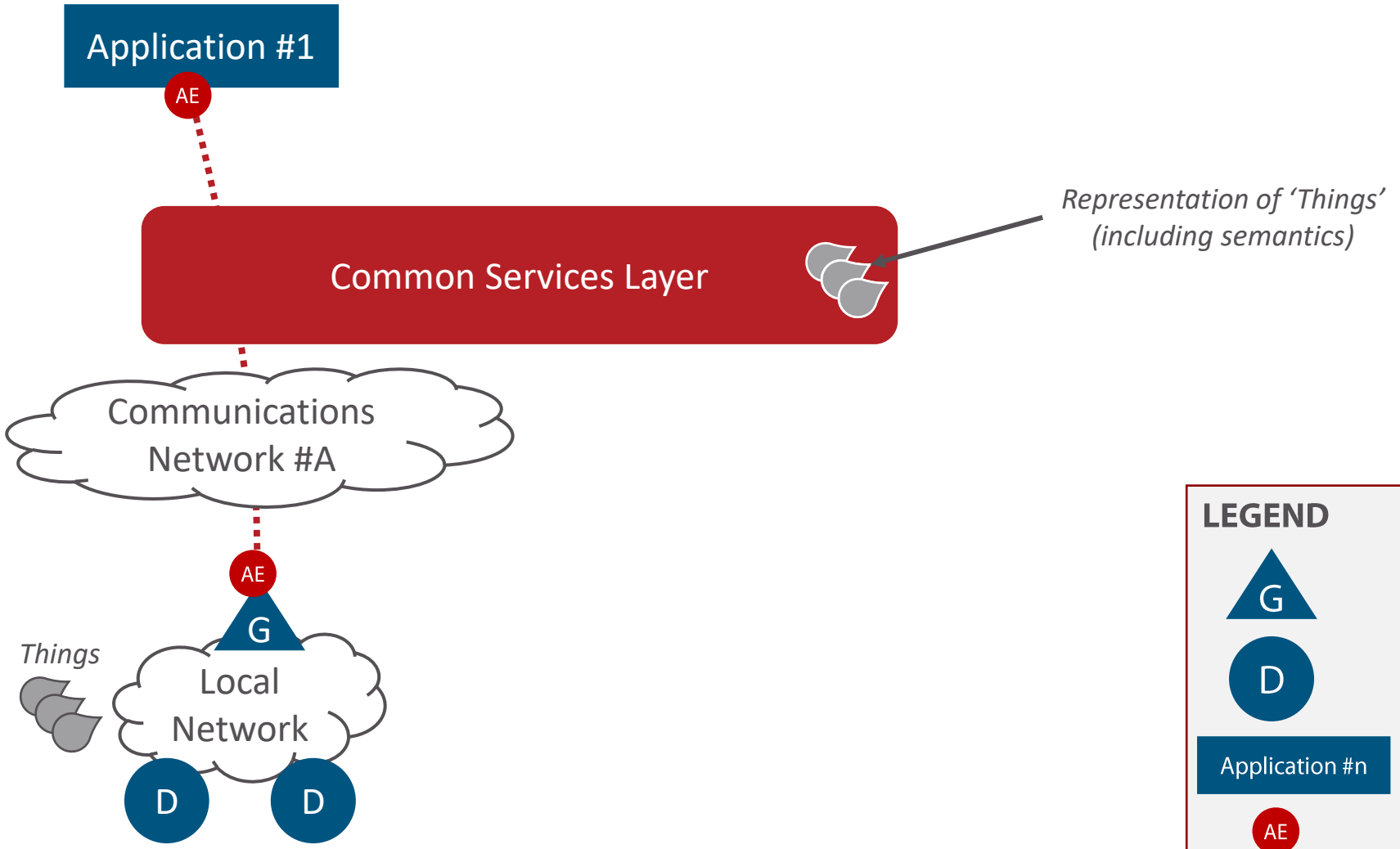
LEGEND

G — *Gateway or Edge-processing node*

D — *Device, sensor, control input device etc.*

Application #n — *Application that consumes and processes IoT data*

Pattern: Single Purpose Application



LEGEND

- G — *Gateway or Edge-processing node*
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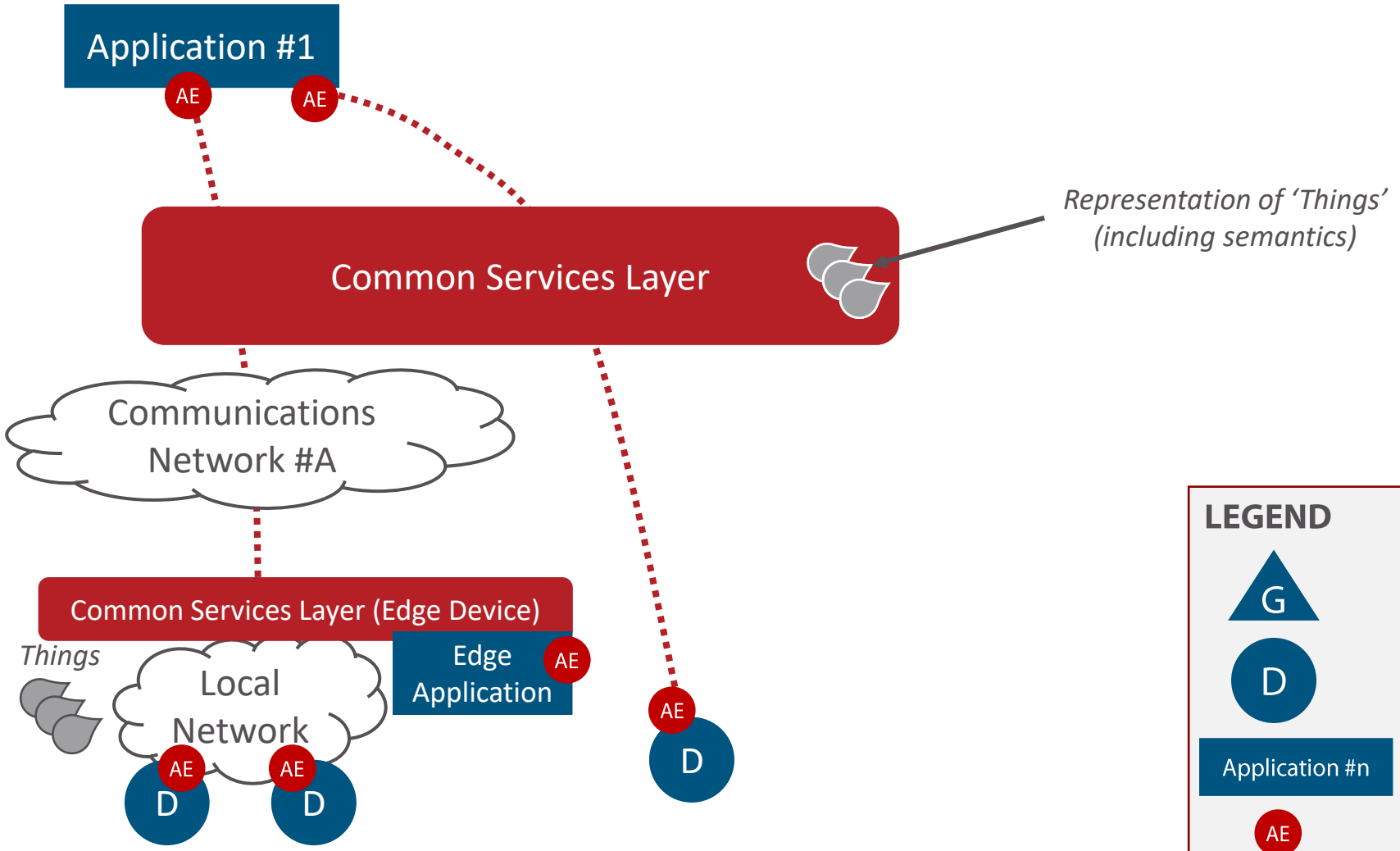
- AE — *oneM2M Application Entity*

Pattern: Edge and Edge/Fog Processing



LEGEND

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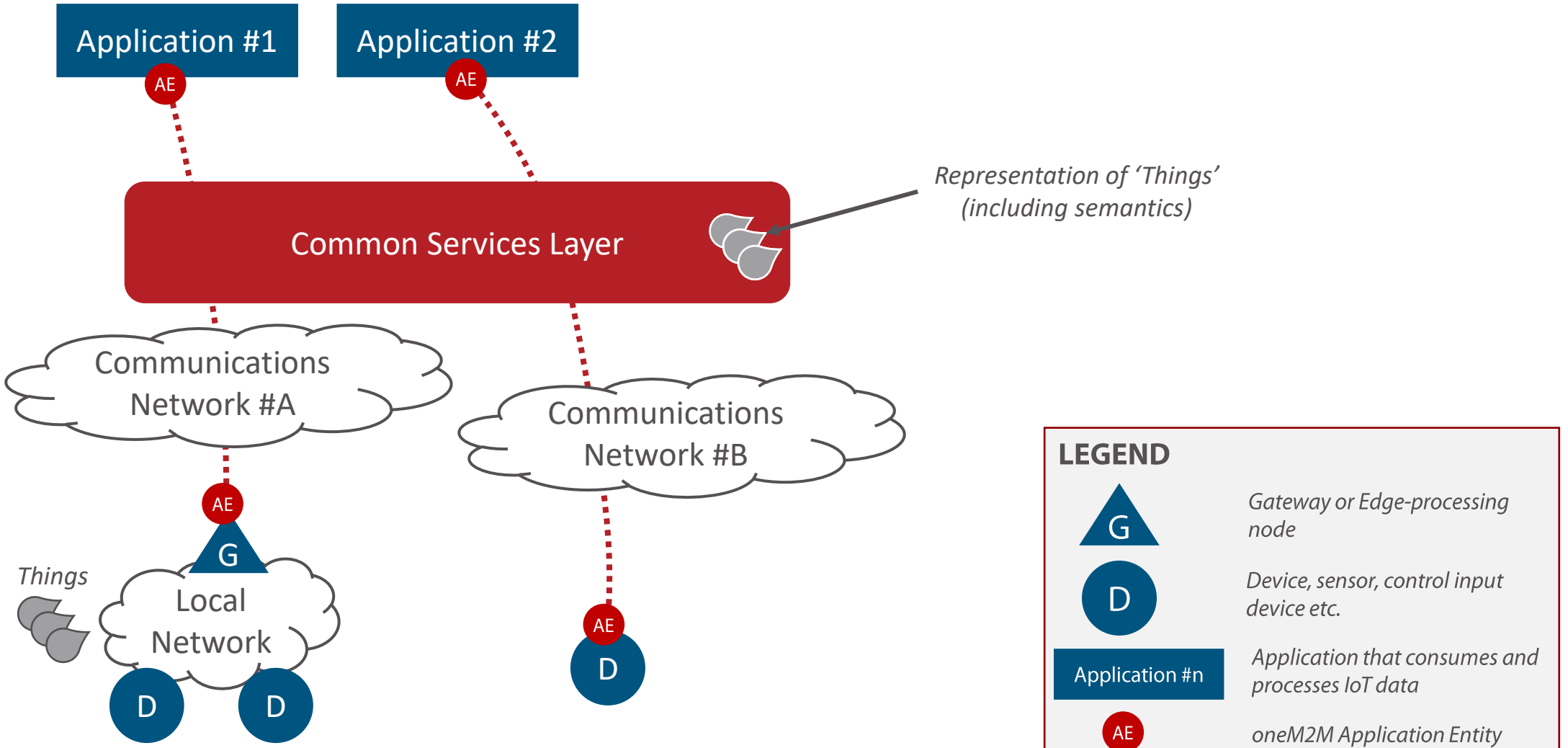
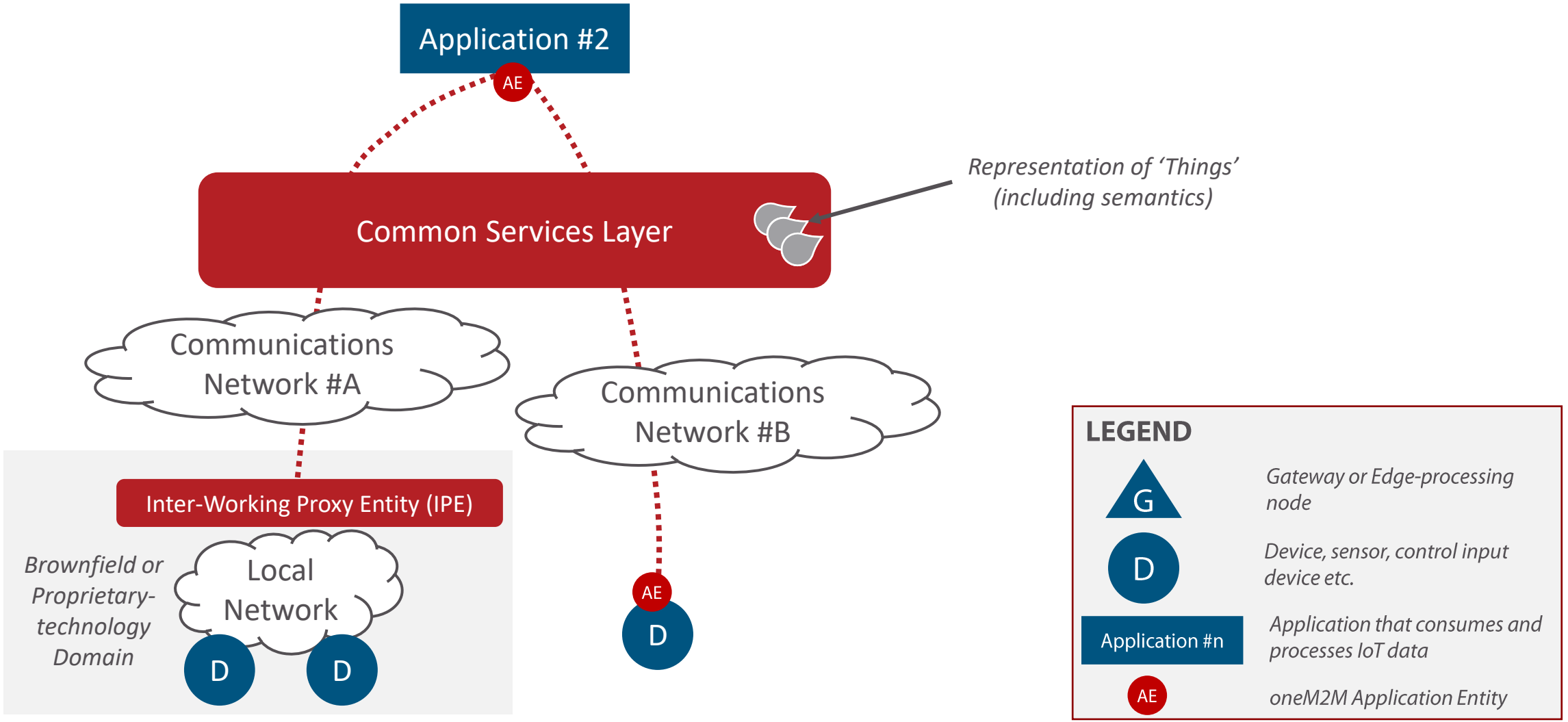
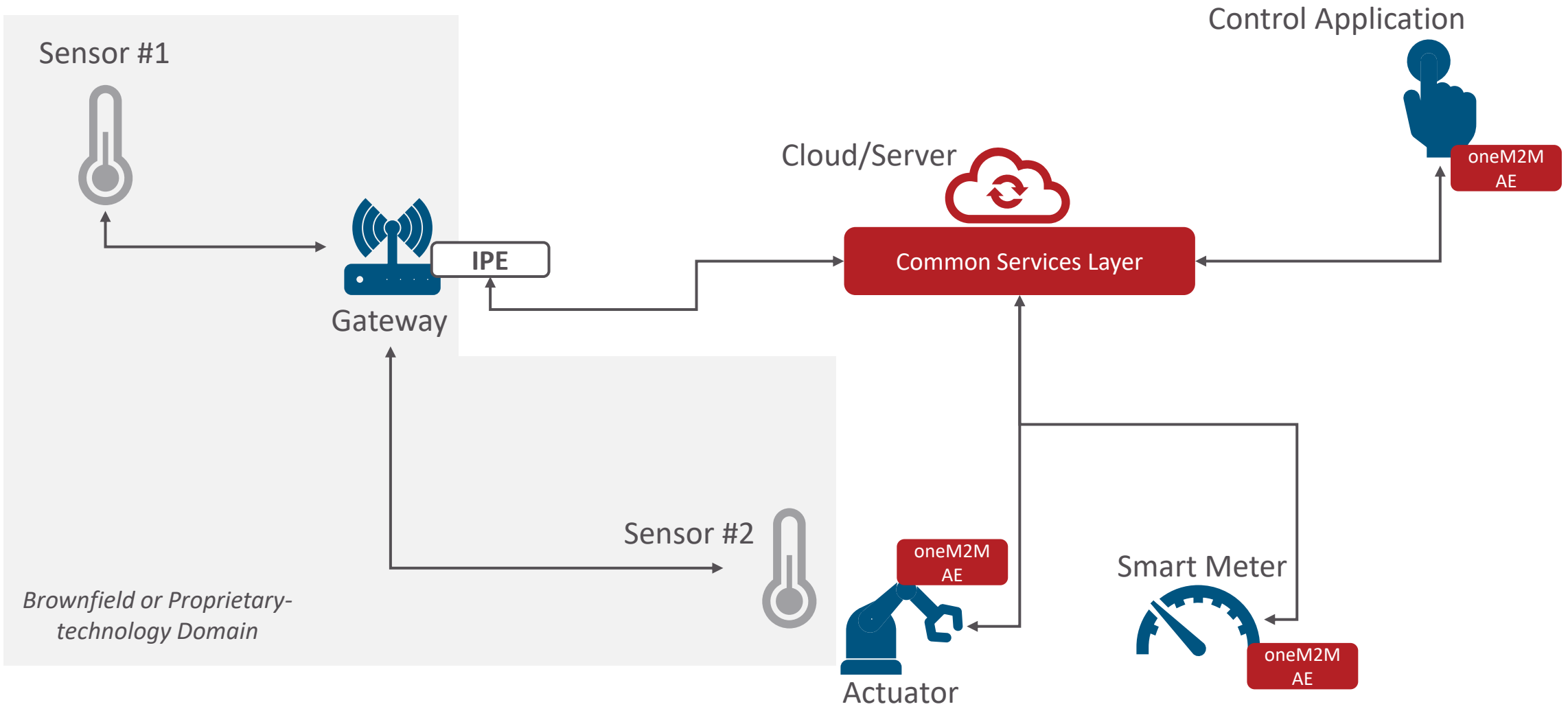
Pattern: Multi-user, Shared Platform



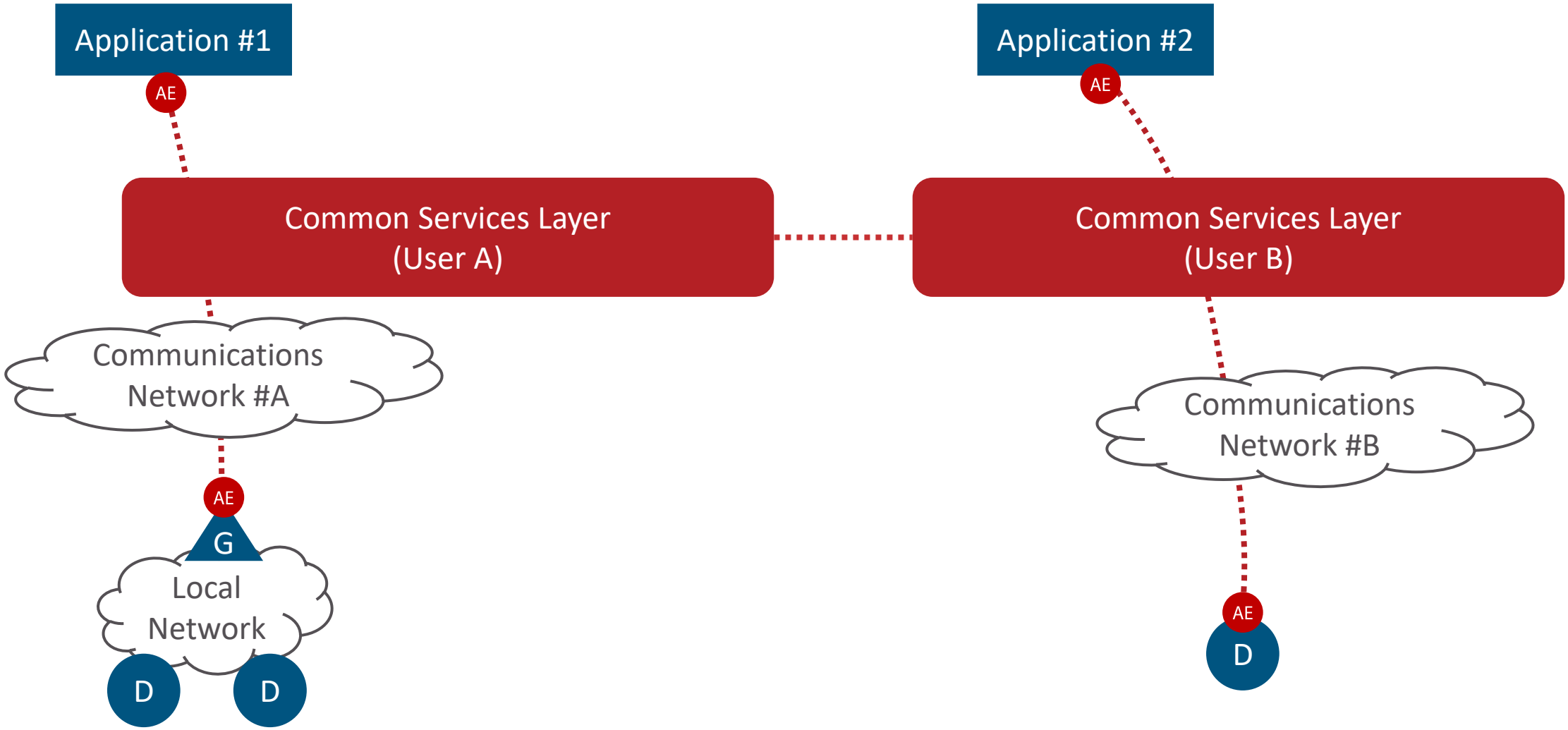
Pattern: Brownfield + Greenfield



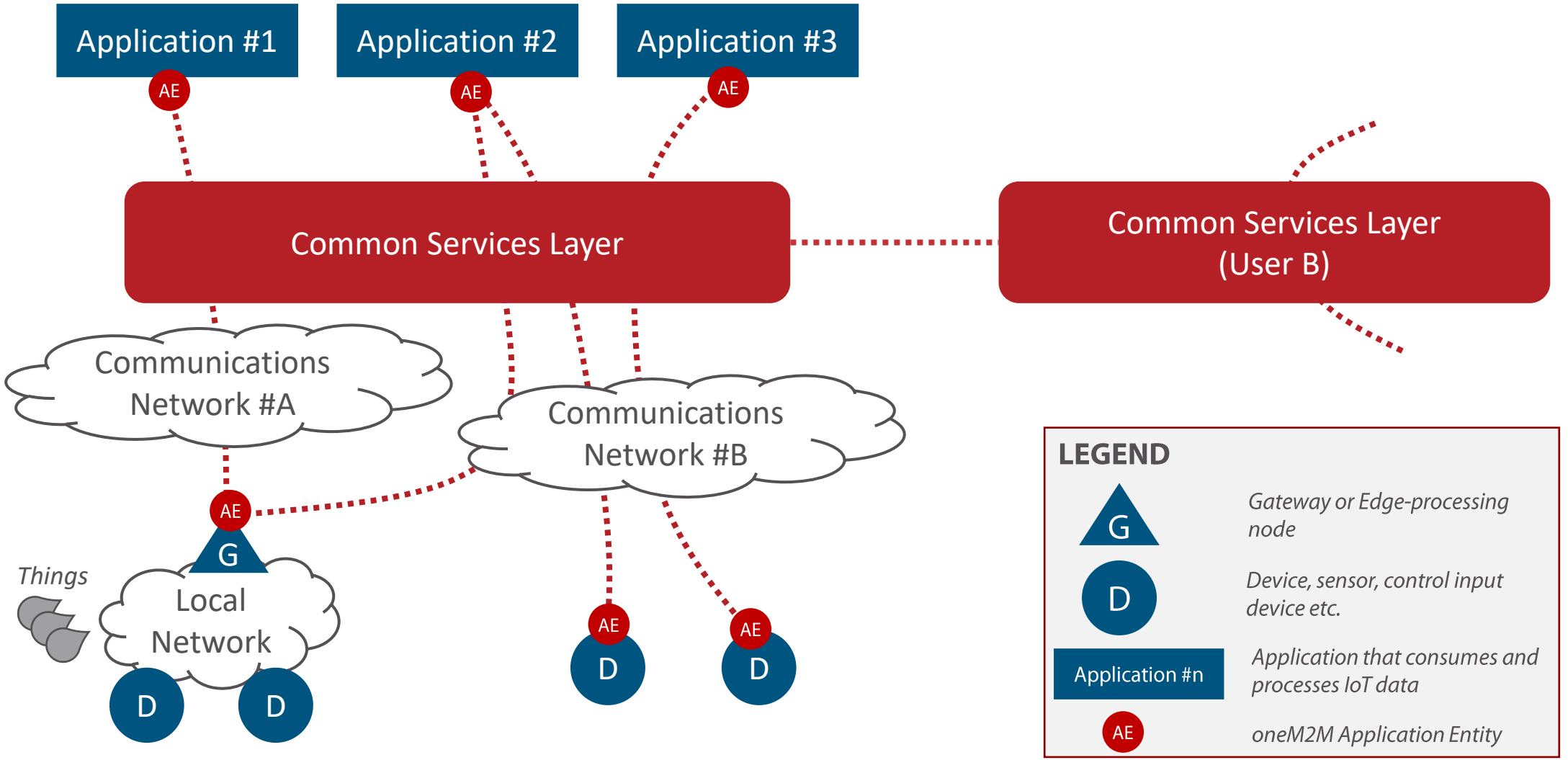
Pattern: Brownfield + Greenfield (example)



Pattern: Federation Across Platforms and/or Between Organizations



General-purpose framework for IoT systems



For more information

- About oneM2M – www.oneM2M.org
- Joint IIC/oneM2M White Paper comparing architecture approaches (2019)
- Roland Hechwartner (Deutsche Telekom) – oneM2M's growing role as a universal hub for standards-based IoT
- IIC Journal of Innovation - Data marketplace for intelligent transport and smart regions using oneM2M
- oneM2M deployment examples

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